

LOUISIANA conservationist

Published Bi-Monthly in the interest of conservation of Louisiana's natural resources by the Wild Life and Fisheries Commission



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resources of my country—its soil
and minerals, its forests, waters
and wildlife.



The Louisiana Conservationist received
two awards for excellence from the
International Association of Business
Communicators District II at the annual
conference in Athens, Georgia. It was
named Best Overall Magazine and Best
Nonprofit Organization's Magazine.

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LOUISIANA CONSERVATIONIST MAGAZINE

VOLUME 23 NUMBERS 5 and 6

400 ROYAL STREET • NEW ORLEANS, LOUISIANA 70130

Subscription Free to Louisiana Residents
Upon Written Request

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COVER—First successful nesting of Brown Pelicans in Louisiana
in 11 years—Photograph by Allan Ensminger

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Editor, LOUISIANA CONSERVATIONIST, Wild Life and Fisheries Commission.

Form 3579 to be sent to LOUISIANA WILD LIFE AND FISHERIES
COMMISSION, 400 Royal St., New Orleans, Louisiana 70130.

Second-Class Postage Paid at New Orleans, Louisiana

THE RETURN OF THE BROWN PELICAN

TED JOANEN AND DAVIDSON A. NEAL

A SMALL NESTING COLONY of Brown pelicans has been reported this spring along the Louisiana coast for the first time since 1961! All birds in this flock were also reported to be carrying small white cloth bands attached to their wings. Thirteen nests containing 20 eggs were located on a small shell island in Barataria Bay near the Commission-owned research laboratory at Grand Terre. These birds were a result of the restocking program carried on by the Refuge Division of the Louisiana Wild Life and Fisheries Commission each year since 1968.

In early spring of 1968, representatives of various state game departments, Bureau of Sport Fisheries and Wildlife, the National Audubon Society, and a number of private organizations met at the Commission-owned Rockefeller Wildlife Refuge to determine the past and present population trends of Brown pelicans and to investigate the possibility of re-establishing a resident colony once again in Louisiana.

Populations of Brown pelicans declined drastically in North America during the 1960's. Louisiana recorded its last nesting attempt back in 1961. Also, Texas reported only two nesting attempts in 1968 where hundreds nested before. As an outgrowth of the meeting held at Rockefeller Wildlife Refuge, plans were made to ship 50 fledgling pelicans from Florida for release in Louisiana.

That year, personnel of the Refuge Division of the Louisiana Wild Life and Fisheries Commission, with the aid of the Florida Game and Freshwater Fish Commission, obtained 50 young fledgling pelicans from Coco, Florida. The birds were trucked to the Rocke-



PHOTO BY ALLEN ENSMINGER



2. 3.

PHOTOS BY LLOYD POISSENOT

Opposite Page—1. Aerial view of narrow shell shoal where pelicans nested. At normal high tide there was only one foot elevation for the nesting birds.

2. With excellent chances of survival following the precarious hatching on the shell shoal, two young pelicans contemplate their new home.

3. A mother pelican carefully watches over fledglings in nest.

feller Refuge at Grand Chenier and released in two covered flying pens.

Diets and methods of handling were worked out and the birds were later released at the Grand Terre Marine Research Laboratory and also at the Rockefeller Refuge. Both areas had once supported large flocks of pelicans and the beaches, surrounding marshes and bay areas of Grand Terre Island provided ideal nesting habitat. Each bird was banded with a U.S. Fish and Wildlife Service leg band and also a white patagial wing streamer for identification in the field.

Plans for the captive flock were two-fold. First, the Louisiana Wild Life and Fisheries Commission wanted to investigate the possibilities of establishing a captive population of pelicans that would be available for experimental purposes; second, direct releases of young birds were planned.

The first release was made in September, 1968, with 25 banded birds set free on Grand Terre. In October, 1968, a release of 21 birds was made at Rockefeller.

The birds quickly dispersed over Grand Terre Island, returning each day to feed on the food made available by the personnel at the Laboratory. In

July of 1969, 25 additional fledgling pelicans were released at Grand Terre, and after several weeks all were flying and had joined with the other birds.

The 1968 release at Rockefeller Refuge did not fare out so well; however, the pelicans falling victim to a mysterious die-off. Sick and dying pelicans were noticed on the feeding sites in late March and were immediately taken to the Veterinary Science Department at LSU for post-mortem examination; all dead birds were also analyzed at LSU's Feed and Fertilizer Laboratory for possible chlorinated hydrocarbon insecticide residue.

The results of the analysis from the Veterinary Science Department indicated little which seemed to be of major significance, although the birds were emaciated and showed the presence of ascarid endoparasites (round worms found in the intestinal tract). Occurrence of this parasite was believed to be relatively normal.

The insecticide residue analysis; however, proved to be another story. Relatively high concentrations of chlorinated hydrocarbons were found in tissues of the brain and liver of all birds analyzed from the Rockefeller release. According to the findings the tissue samples contained quantities of DDT, DDD,



5.

PHOTO BY LLOYD POISSENOT



6.

PHOTO BY LLOYD POISSENOT

DDE, dieldrin and endrin.

The samples taken at Grand Terre, where the pelican colony continued to thrive, were relatively clean of insecticide content. The die-off at Rockefeller Refuge was spread over a period of approximately a month, indicating that disease, which would have resulted in a spontaneous die-off, was not the culprit.

A possible explanation of this situation was that the Brown pelican picked up insecticide residues over an extended period of time and stored them in fatty tissues of their bodies (which some birds—apparently pelicans among them—have the ability to do). When the birds are put under stress, stored fat is metabolized into energy and during the process pesticide residues are circulated to other organs of the body. During this period of stress, if there is enough organochlorine residue in fatty tissue it will cause mortality. The intake of stored fat, on the other hand, would have been different for each bird, resulting in a staggered death toll.

One hundred additional birds were obtained in 1970; however, all were released at the Grand Terre Lab. This brought the total to 150 birds released at Grand Terre over a three-year period. A very close check was kept on these birds by the personnel at the laboratory and periodic aerial inventories were made throughout the year. Also, information on mortality and plumage sequence were made.

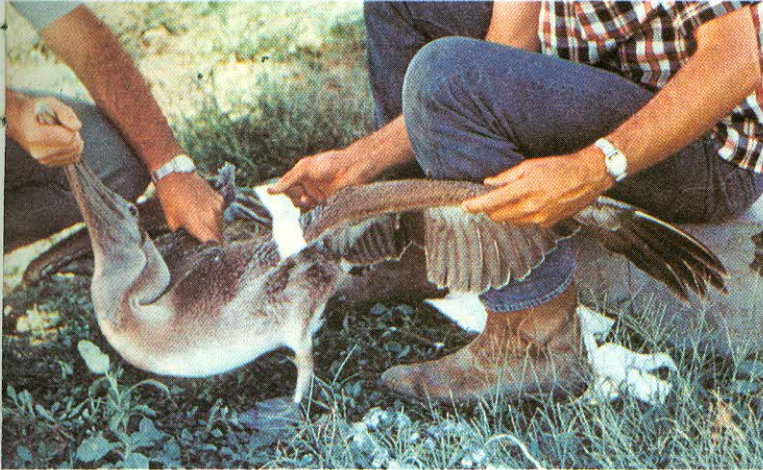
Nesting was first reported in March of this year by the personnel of the Marine Laboratory. Pelicans are known to nest either in the small, low mangrove bushes or on the ground. These birds chose a ground nesting site and constructed their nests on a small shell reef extending into Barataria Bay. Here the nests were built with loosely constructed mangrove sticks and also oyster grass. Anywhere from one to three eggs were present in each nest.

Incubation was started as soon as the first egg was laid. This would explain the variance in size of the young in the nest. The eggs appeared dull, dirty-white, heavily nest stained and appeared to have a rough surface. At the time of this writing, there are 11 young present with several eggs remaining to be hatched. When the young first hatched, they were far from attractive, looking more like shape-

Opposite Page—4. Close up of newly hatched pelicans. Egg shells were carefully gathered and rushed to laboratories for analysis to determine possible presence of pesticides. 5. Average pelican nest contained two eggs. 6. A nesting pelican.

7. Commission personnel are shown banding pelicans imported in 1968 from Florida. Wing streamers were also attached to help proper identification of the age of birds. 8. The small colony of nesting pelicans are shown on the shell reef they selected to build their nests and lay their eggs. 9. A close up of nesting pelicans.

7. PHOTO BY TED JOANEN



8. PHOTO BY McFADDEN DUFFY



9. PHOTO BY LLOYD POISSENOT



less masses of red meat. They appear quite helpless in the early weeks of life; however, within a few weeks begin to take shape and become quite active. Their reddish color seems to disappear within a few weeks, taking the appearance of dark black to purple. In approximately three to four weeks down begins to appear, usually on the wings and the back, head and neck.

The young birds have been found to grow very rapidly and are three times the size within about a three-week period. At this stage they begin walking very clumsily throughout the nesting colony causing great confusion and frustration among the parent birds. It was interesting to note that nest construction continued throughout the incubation and rearing of the young. At the onset of the laying period, nests were composed of loosely gathered sticks and marsh grasses. As the young began to hatch, nest measurements indicated they had doubled in size and height. Both the male and female seemed to tend nest and assist with the incubating chores. From all indications, the food consists entirely of fish. Both parents also assist in caring for the young.

What security the environment along the Louisiana coast will offer these birds in the future remains to be seen. However, a very close monitoring system has been set up in order to follow certain aspects of the biology, parasites, diseases, and also pesticide residue in the Brown pelican. Eggs that produced young this year have been retrieved and measured for egg shell thickness. It already has been proven that thickness of the shell decreases with increasing amounts of DDE residue (a metabolite of DDT).

The inquiry into the fate of Louisiana's Brown pelican population is still in its infancy, and only general assumptions can be drawn; however, the preliminary results help to shed new light on some of the causative agents of the demise of the Brown pelican along the Louisiana coast. From the result of these studies and other studies conducted by researchers throughout the country, it is hoped that enough knowledge will be gained to insure this situation never develops again and it may also serve as an indication of what could happen to Louisiana's other wildlife forms.